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ENTERPRISE DEVELOPMENT IN THE MINING INDUSTRY IN SUB-SAHARAN AFRICA

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ENTERPRISE DEVELOPMENT IN THE MINING INDUSTRY IN SUB-SAHARAN AFRICA

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FOREWORD

This research paper is a useful addition to the literature on the promotion of enterprise development in the process of mining in Africa. It draws on a body of literature and personal interviews to synthesize some lessons learned about best practices in how to plan and execute enterprise development programs for mining companies, governments and donors.

This paper begins with an analysis of mining activity in Sub-Saharan Africa (SSA) that places the topic of enterprise development in the context of current and future trends in mining in Africa. It also provides annexes that show the types and numbers of mines in the region.

The paper then focuses particularly on how to engage and employ local enterprises as part of a local content program. Three examples from different mining companies in Africa are presented with a description of the various phases and considerations involved in designing and implementing the programs. It ends with a summary of key success and failure factors to be considered in this process.

The Business Growth Initiative (BGI) project is pleased to have supported the research and development for this paper and the BGI Team hopes that readers will find it useful as a guide in how to establish enterprise development programs in mining programs. Many of the lessons learned in this report go beyond being Africa specific and are also applicable to other regions of the world. We trust that you will find it interesting and we would be interested in feedback on this paper and on the other activities of the BGI project. Please visit our website at www.businessgrowthinitiative.org to get information on other aspects of enterprise development as well.

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EXECUTIVE SUMMARY

The mining sector in Sub-Saharan Africa is a complex web of host country governments, donors, mining companies, and local communities. Central to all four is a preoccupation with the welfare of host communities. For mining companies this is manifested by the engagement of local communities through development-oriented programs, as a response to the expectation that their presence should have a positive influence on local development. These “social mining” programs are characterized by the incorporation of socioeconomic development and empowerment into corporate management and strategy goals. They address areas as diverse as education, health, and livelihood enhancement.

Social mining programs also include encouraging “local content” – the capture of supply chain opportunities by local enterprises. This promotes local development and provides direct benefits to mining companies as local businesses provide them with a multitude of services. Local content programs generally include training and mentoring as well as procurement systems’ modifications. A central expectation underlying these programs is that they will create a competitive supplier base that will eventually branch out to other clients and lose their dependence on the mines.

In this study we aimed to determine whether local content programs (1) improve how companies are perceived, (2) build local enterprise capacity, (3) result in profitability gains for the mining company, and (4) promote local development. Through literature and document research as well as interviews, we found strong indications that local content programs achieve all four results.

For example, one program resulted in high-quality contract implementation by the local suppliers, (indicating successful capacity building) and became a model to be replicated, while another was later taken over by the mining company (indicating the usefulness of these programs to mining companies). In many cases we found that Small and Medium Enterprises (SMEs) broke their dependence on the programs and the mines, and went on to become self-sufficient, suggesting that from a donor’s standpoint these programs do create income-generating opportunities.

From our research we also drew key factors that will be pertinent to the success of future local content programs. These include issues of stakeholder coordination and clarity of purpose; the adequate scoping of procurement demands, baseline local enterprise capacity (SME mapping), country regulations for local content, and local cultural contexts; the securing of mining company champions at the executive level; and the implications of mineral type and extraction methods for program design and implementation.

The specific examples presented in this study will provide a guide and starting point for further research on local supplier development programs in Sub-Saharan Africa and other regions of the world, and in so doing benefit the mining sector, donors, host governments, and communities.

ACRONYMS AND ABBREVIATIONS

APDF	Africa Project Development Facility
BDO	Business Development Officers
BEE	Black Economic Empowerment
BGI	Business Growth Initiative
CBO	Community Based Organization
CDM	Cervejas de Mocambique
CPI	Centro de Promoçao de Investimentos
DRC	Democratic Republic of the Congo
EPCM	Engineering, Procurement, Construction and Management sector
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GMI	Global Mining Initiative
GRI	Global Reporting Initiative
HDSA	Historically Disadvantaged South Africans
ICMM	International Council on Mining and Metals
IFC	International Finance Corporation
IIED	International Institute for Environment and Development
M&E	Monitoring and Evaluation
MMSD	Mining, Minerals and Sustainable Development project
NGO	Non Governmental Organization
PEPFAR	President's Emergency Plan for AIDS Relief
PGM	Platinum Group Metals
SME	Small and Medium Enterprise
SMEELP	Small and Medium Enterprise Empowerment Program
SSA	Sub-Saharan Africa
USAID	United States Agency for International Development
WBCSD	World Business Council for Sustainable Development

INTRODUCTION

1.1 Purpose and Rationale of Paper

The purpose of this paper is to analyze the characteristics and effectiveness of enterprise development programs in the extractive sector in Sub-Saharan Africa. The focus herein is on corporate programs that aim to integrate local small and medium enterprises (SMEs) into their core business, most typically through their supply chains, and on identifying design strategies and implementation methodologies that could be expanded, replicated or leveraged elsewhere. While this study is directed at the extractive industry, it is focused exclusively on the mining sector. However, some of the lessons learned may also be applicable to other extractive industries.

The extractive sector comprises a significant percentage of foreign and domestic direct investment in Sub-Saharan Africa. Despite the current global financial crisis, this is likely to increase over time due to a rising demand for, and supply of, large amounts of untapped mineral resources. However, because of its nature (scale, duration, extraction methods, and location) the extractive industry can have significant economic, social, physical and environmental impacts in host countries.

How mining operations are regulated and managed can determine whether their impacts are positive or negative.[1] In that regard, host country governments, mining companies, local communities, and donors are all stakeholders with interdependent interests. Central to all four – but for different reasons – is a preoccupation with the welfare and development of host communities. This has led mining corporations – strongly encouraged by governments, monitored by communities, and sometimes in cooperation with donors – to engage communities through on-the-ground, development-oriented programs.

In this context, this paper examines programs that offer economic opportunities to indigenous SMEs within the mine's supply chain. We first provide a brief overview of the mining sector in Sub-Saharan Africa and the constraints faced by mining corporations in the region, in response to which corporate responses – i.e. social mining programs – are developed. We then outline the rationale and general principles behind programs that include local suppliers into the supply chain, and present specific examples. Finally, we conclude with an analysis of our findings as well as guidelines for future program design and implementation.

1.2 Methodology

Primary and secondary data sources were used in writing this paper. Primary data was collected through a series of semi-structured interviews with a broad range of stakeholders, including mining corporate executives, government officials, and project staff at multilateral institutions. Various secondary source project documents and papers were collected from a range of multilateral organizations, academics, and mining companies. Annex I provides a complete list of all people interviewed and Annex VI provides a complete list of secondary sources.

Primary data gathering was almost exclusively related to enterprise development, which helped validate some of the insights gained from studying the secondary source materials. And, although different questionnaires were used depending on the audience and their role in local

[1] World Bank and International Finance Corporation. 2002. Large Mines and Local Communities: Forging Partnerships, Building Sustainability.

enterprise development, semi-structured interviews were the preferred methodology of data collection.

Secondary source materials were filtered through research parameters that identified three tiers of mining company involvement in local communities, as follows: (1) Broad community investment, which includes (2) local economic development, which, in turn, includes (3) local enterprise development. To the largest extent possible, this paper focuses on local enterprise development.

Lastly, a series of examples that enrich our findings from primary and secondary sources with facts and insights from specific cases are provided for a deeper understanding of the factors of success and failure in enterprise development programs, which complements the general analysis of this paper.

THE MINING SECTOR IN SUB-SAHARAN AFRICA

2.1 Minerals' Importance to National Economies

The range of minerals produced in Sub-Saharan Africa includes base metals, such as bauxite, copper, nickel, zinc, silver and phosphates; ferrous metals, such as chrome, iron ore, and manganese; and precious minerals, including the platinum group (platinum, palladium, rhodium, iridium) and gold. A wide variety of gemstones (especially diamonds) and titanium sources, such as ilmenite and rutile, as well as coal (see Table 1 below) are also produced in this region.

Today, mining is a key component of the economies of most Southern African nations.[2] For example, the economy of Botswana has been built on the value of its diamond production that alone represents almost 40% of GDP and 75% of export earnings. In the region overall, mining, including processed minerals and provides 60 percent of foreign exchange.[3] In 2005 and 2006, the strong rise in Foreign Direct Investment (FDI) in Sub-Saharan African countries was led by the extractives sector, mainly due to investors seeking to respond to a rising global demand and to increases in commodity prices.[4]

Table 1: Sub Saharan Africa Mineral Potential by Country

Angola	Diamonds, iron ore, phosphates, copper, feldspar, gold, bauxite, uranium
Botswana	Diamonds, copper, nickel, salt, soda ash, potash, coal, iron ore, silver
Cameroon	Bauxite, iron ore
Central Africa Republic	Diamonds, uranium, gold, oil
Congo DRC	Cobalt, copper, niobium, tantalum, petroleum, industrial and gem diamonds, gold, silver, zinc, manganese, tin, uranium, coal
Congo, Republic of	Potash, lead, zinc, uranium, copper, phosphates, gold, magnesium
Equatorial Guinea	Gold, bauxite, diamonds, tantalum
Gabon	Diamond, niobium, manganese, uranium, gold, iron ore
Ghana	Gold, industrial diamonds, bauxite, manganese, petroleum

[2] We use MMSD's country categorization, which considers the following countries to belong to the Southern African region: Congo DRC, Tanzania, Zambia, Angola, Malawi, Mozambique, Zimbabwe, Namibia, Botswana, Swaziland, Lesotho, and South Africa.
[3] MMSD Southern Africa. 2002. Mining, Minerals and Sustainable Development in Southern Africa. University of Witwatersrand.
[4] UNCTAD. 2007. World Investment Report 2007: Transnational Corporations, Extractive Industries and Development.

Guinea	Bauxite, iron ore, diamonds, gold, uranium
Lesotho	Diamonds
Liberia	Iron ore, diamonds, gold
Mali	Gold, phosphates, uranium, *note:* bauxite, iron ore, manganese, tin, and copper deposits are known but not exploited
Madagascar	Chromite, coal, bauxite, semiprecious stones
Mozambique	coal, titanium, natural gas, tantalum
Namibia	Diamonds, copper, uranium, gold, silver, lead, tin, lithium, cadmium, tungsten, zinc
Nigeria	Tin, iron ore, coal, niobium, lead, zinc
Rwanda	Gold, cassiterite (tin ore), wolframite (tungsten ore)
Sierra Leone	Diamonds, titanium ore, bauxite, iron ore, gold, chromite
South Africa	Gold, chromium, antimony, coal, iron ore, manganese, nickel, phosphates, tin, uranium, gem diamonds, platinum, copper, vanadium
Swaziland	Clay, cassiterite, small gold and diamond deposits
Tanzania	Tin, phosphates, iron ore, diamonds, gemstones, gold, nickel
Togo	Phosphates
Zambia	copper, cobalt, zinc, lead, coal, emeralds, gold, silver, uranium
Zimbabwe	Coal, chromium ore, gold, nickel, copper, iron ore, vanadium, lithium, tin, platinum

Source: CIA World Factbook.

Mineral exports are also a significant portion of total exports. In Guinea, the largest African exporter of bauxite and alumina, with approximately half of the world's reserve, the mining sector accounts for 70% of exports. In 2007, Zambia produced 3% of the world's copper and 11% of world cobalt, valued at $3.7 billion and the mining sector accounted for 79% of Zambia's merchandise exports. In Tanzania, mineral exports make up 45% of foreign earnings while in Sierra Leone, the same figure is earned by diamonds alone. The impoverished country of Mali is dependent on gold for 65% of its total exports, with the bulk of its mineral wealth still unexploited.

Despite justified concerns about the potential effects of relying on a single sector – in terms of real exchange rate appreciation and the resulting damages to other export-based sectors – the potential of mining in terms of sustainable development cannot be overlooked.

2.2 Current and Future Trends

According to a prominent provider of data on the mining sector, in December 2008 the largest number (37.5 percent) of mining projects were located in Southern Africa, followed by West Africa (27.8 percent). These two regions accounted for almost a third of all projects in Sub-Saharan Africa (see table 2).[5]

[5] Complete data can be found in Annex IV. Note that the tables include Canada, Peru, and Egypt (see "other"); however, as they were not within the scope of this paper they were deleted, bringing down the total number of projects to 683.

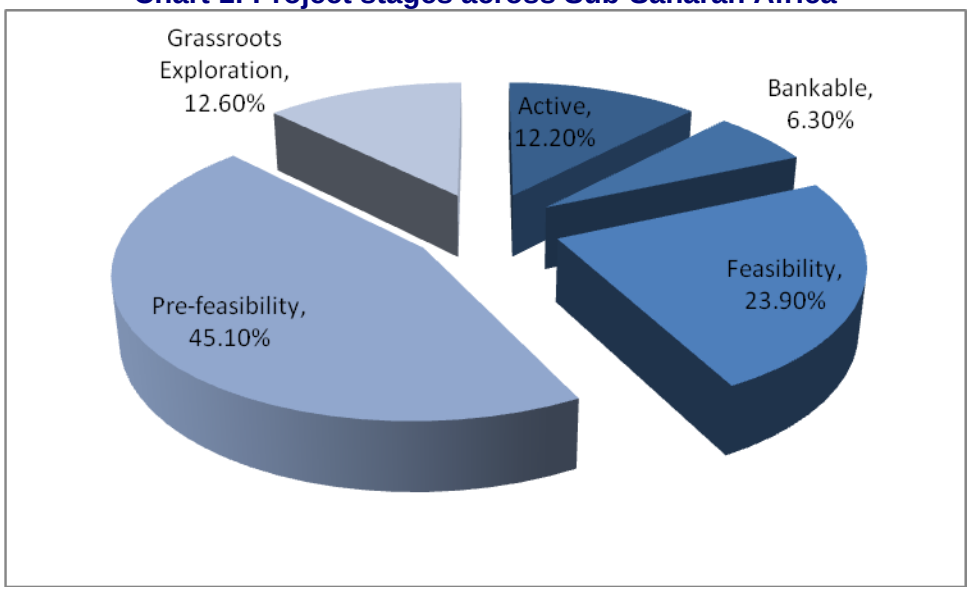
Table 2: Number of Mining Projects by Region across Sub-Saharan Africa

Southern Africa	37.5%
West Africa	27.8%
Central Africa	18.0%
East Africa	11.9%
Indian Ocean	4.8%

Source: Projects IQ, 2008

In the same year, 45.1 percent of all projects in Sub-Saharan Africa were in the pre-feasibility stage, followed by 23.9 percent in the feasibility stage, indicating that the number of mining projects was likely to increase in the coming years (see chart 1).

Chart 1: Project stages across Sub-Saharan Africa



Source: Projects IQ, 2008

Moreover, the largest number of projects in the feasibility and pre-feasibility stages were located in Southern and West Africa. In the latter there were many more projects in the pre-feasibility stage than in the feasibility stage; in Southern Africa the trend was the same but the difference was more nuanced (see table 3).

Table 3: Projects by stage and region across Sub-Saharan Africa

	Active	Bankable[6]	Feasibility	Pre-feasibility	Grassroots Exploration
Southern Africa	50	27	79	91	8
West Africa	13	10	35	108	25
Central Africa	20	4	27	57	15
East Africa	1	2	21	37	20
Indian Ocean	2	0	2	11	18

Source: Projects IQ, 2008

These tables therefore indicate that in December 2008, the number of projects in Sub-Saharan Africa was poised to substantially increase. Moreover, Southern and West Africa will be responsible for the largest portion of the new projects, since the data shows their prominence in the number of projects in pre-feasibility and feasibility stages.

In terms of type of mineral, the most mined mineral was gold (41.5 percent of all projects) followed by diamonds at only 13.3 percent. Considering all stages of projects, West Africa had the largest amount of gold projects while Southern Africa had the largest amount of diamond projects. Although we were unable to examine the type of mineral per feasibility stage, these figures and the ones described above indicate that the bulk of mining will take place in Southern and West Africa in the gold and diamond sectors.

2.3 Mining Companies

Over 230 mineral mining companies are active in Sub-Saharan Africa, yet in 2006 the top ten companies controlled 35% of global non-fuel mining.[7] One reason for this high market share is that many mining operations fall under various forms of public private partnerships with shared equity between government and private investment, and sometimes the private investors are other mining companies or multinationals. For instance, Angola's Catoca Diamond Mine, the fourth largest in the world, is owned through a consortium of the Angolan state diamond company (Endiama), the Russian diamond major Alrosa, Odebrecht of Brazil, and Daumonty Financing of Israel (part of the Leviev Group). Furthermore, many operations are managed by "junior" mining companies, which are smaller exploration and mine development entities with, oftentimes, only one or two operation sites.

Table 4: Reuters Top Ten Global Non Fuel Mining Companies 2006

	Company	Country	% Share		Company	Country	%Share
1	Vale	Brazil	5.4	6	Codelco	Chile	3.2
2	BHP Billiton	Australia	4.8	7	Xstrata	Switzerland	3.0
3	Anglo American	Britain	4.3	8	Norilisk Nickel	Russia	2.7
4	Rio Tinto	Britain	4.3	9	Barrick	USA	1.8
5	Freeport McMoran	USA	3.3	10	Grupo Mexico	Mexico	1.6

[6] i.e. when the project has been structured in a way that meets the requirements of the financing institutions.
[7] Reuters http://uk. reuters. com/article/oilRpt/idUKL0882375320071108.

ENTERPRISE DEVELOPMENT AS A COMPONENT OF "SOCIAL MINING"

3.1 Social Mining

Due to the intense scrutiny that mining companies have had to face regarding potentially adverse project impacts and, more recently, stakeholders' expectations that projects will have positive effects on socioeconomic development and the environment, mining companies have to cooperate with a multitude of stakeholders, including host country governments (national, provincial, and local), investors, and local communities (including local Non-Governmental Organizations (NGOs), Community Based Organizations (CBOs), and local businesses). As such, there is a strong business case for corporations to constructively engage with local communities and governments to gain acceptance and legitimacy.

First, mining corporations have increasingly come under watch and criticism by civil society, foreign NGOs and the press over the past decades, and the adverse social and environmental impacts of certain mines on local communities in developing and developed countries, some widely documented,[8] have created brand and reputational risk for the mining sector, with negative consequences on revenue and capital (i.e. due to a reduction in investor confidence).

Secondly, host country governments expect mining operations to be a driver of sustained economic growth,[9] an expectation that does not limit itself to fiscal revenues and foreign exchange generation. Indeed, companies are also expected to contribute to, and even be the main provider of development at the local level, because rarely do the macro-economic proceeds from the mining sector translate into gains for the areas around the mines.[10] Corporations are thus expected to provide education, health, and infrastructure; to significantly use local suppliers and distributors; and to increase the provision of local employment under fair working conditions. Not surprisingly, obtaining official permission to prospect for and extract minerals largely hinges on companies fulfilling (or promising to fulfill) government expectations.

Lastly, although community demands mostly mirror those of host governments in terms of local development, communities are more specific about how interventions should be designed and implemented. In addition, communities can monitor interventions more closely, since they directly feel the impact (or lack thereof) of initiatives vis-à-vis their expectations. To avoid social unrest – strikes, protests, the occupation and destruction of property, – and tense relations with local communities – mining companies must now engage with them through consultative and participatory processes that generate trust and understanding on the part of both parties. This is important not only because community grievances are well reported, but also to avoid costs due to production halts, repairs, and maintenance, and to keep open the prospects for future access

[8] See, for example: Human Rights Program, Harvard Law School. 2007. All that glitters: Gold mining in Guyana and the failure of government oversight and the human rights of Amerindian communities; and Earthworks and Oxfam America. 2004. Dirty metals: Mining, communities and the environment.

[9] International Institute for Environment and Development (IIED); World Business Council for Sustainable Development (WBCSD). 2002. Breaking New Ground: The MMSD Final Report. Earthscan Publications Ltd.

[10] Warner, Michael. 2007. Incentivising community content: the Interface of Community Investment Programmes with Local Content Practices in the Oil and Gas Development Sector. Overseas Development Institute.

to additional mineral reserves.[11] Engaging communities thus has become an essential part of doing business.[12]

The interactions between mining companies and communities have adapted to the changing nature of the demands and expectations of various stakeholders over time. From top-down approaches aimed at limiting damages, providing cash contributions, and dispensing ad-hoc philanthropy, they have changed into mechanisms where community consultation and participation form the basis for actions that are measured and evaluated.[13] Communities are now partners in the mining-driven development of their localities, rather than mere beneficiaries of hand-outs.

This paradigm shift, a manifestation of the need to gain the acceptance of the mine by all stakeholders – or obtain a so-called "social license to operate" – heralds an emphasis on "social mining" – the full incorporation of sustainable socioeconomic development and empowerment into corporate management and strategy goals.

An example of this paradigm shift is the formation of the International Council on Mining and Metals (ICMM) in 2001, following a three-year multi-stakeholder review process entitled the Global Mining Initiative (GMI), launched by the Chief Executives of nine of the largest mining and metals companies to better understand and address the challenges facing the sector. As part of the process, these executives tasked the International Institute for Environment and Development (IIED) with determining the role the mining industry could play in advancing sustainable development. To do so, IIED outlined a two-year participatory analysis process in October 1999 known as the Mining, Minerals and Sustainable Development (MMSD) project.[14]

ICMM currently has a sustainable development framework based on the conclusions of MMSD. The framework has a set of 10 principles[15] and reporting requirements on those principles, in line with the Global Reporting Initiative (GRI, a network-based organization that developed a sustainability framework extensively used by various sectors in 1997), and an independent mechanism to ensure that ICMM members honor their commitments. In addition, to support the implementation of the sustainability framework, ICMM implements a number of programs and projects in the areas of environmental stewardship, health and safety, materials stewardship, socioeconomic development, and the sustainable estimation of resources, as well as running a project, known as the Resource Endowment Initiative, designed to ensure that the benefits from mining reach host countries (including their communities). In the context of these endeavors ICMM works with a number of partners, such as the World Bank/International Finance Corporation, the World Conservation Union, the United Nations Conference on Trade and Development, the International Standards Organization, and the Minerals Industry Safety and Health Center.

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[11] Engineers against poverty. Undated. Maximising the contributions of local enterprises to the supply chain of oil, gas & mining projects in low income countries: A briefing note for supply chain managers & technical end users.

[12] Harris, Leonard; and Rosa H. Harris. 2001. The Importance of Community Assistance in the Mining Industry. In Politics of Mining: What They Don't Teach You in School. Society for Mining, Metallurgy, and Exploration, Inc. (SME).

[13] Tapiero, Dafna. 2009. Enhancing Benefits to Communities from Extractive Industry. Presented at the Extractive Industry Week, World bank/IFC, March 2009.

[14] MMSD website, http://www.iied.org/sustainable-markets/key-issues/business-and-sustainable-development/mmsd-introduction.

[15] See Annex III.

Because stakeholder-expressed local development needs and expectations are often diverse, corporate-led community development initiatives touch upon numerous development sectors.
Education:

- Impala Platinum, a producer of platinum and platinum group metals (PGMs) with operations in South Africa and Zimbabwe, are co-financing (along with the local Department of Education) the construction of a local primary school in South Africa.
- Anvil Mining, a leading copper producer in the Democratic Republic of Congo (DRC), is constructing eight schools and renovating ten more in the DRC.

Agriculture:

- Anvil Mining is creating 40 farmers' groups representing 1,780 farmers in the DRC, to provide advice, training and the creation of seed multiplication sites.
- Equinox Minerals, a leading international copper producer, is developing commercial agriculture and aquaculture projects capable of providing local food to a local town in Zambia.

Health - HIV/AIDS:

- Promoting HIV/AIDS awareness and the provision of access to confidential testing at mining clinics by all diamond mining companies operating in Angola.
- Anglo American, a leading mining and natural resource group, is establishing and funding a clinic that provides free treatment to over 600 AIDS patients in a disadvantaged rural community in South Africa (in cooperation with Virgin United and USAID/PEPFAR).

Sanitation - Water treatment:

- Anglo American has made financial contributions to a local water treatment plant that treats mine water from several coal mines and sells the potable water back to the local authority in South Africa.
- Anvil Mining is installing 48 water wells in 15 communities and the constructing a 27 km gravity-fed water supply system serving an estimated 25,000 people in the DRC.

3.2 Enterprise Development

The development of local enterprises is another component of the set of interventions used by mining corporations to gain their license to operate. First, governments always score points with their electorate when jobs and economic opportunities are created, and there is generally a correlation between the number of SMEs in a country and its fiscal revenues. Secondly, and according to the IFC, there is also a positive correlation between the number of SMEs per 1,000 people and a country's GDP,[16] which also makes enterprise development in communities a development goal for donors. Finally, needless to say, communities themselves gain from the creation of enterprise-based economic opportunities.

We focus herein on enterprise development opportunities directly related to a mine's core business. As such, this paper leaves out noncore-related programs such as, capacity building for a local clinic or poultry farm, and focuses only on core-related programs as they present advantages to mining companies beyond those of other social mining programs. Indeed, like other social mining programs, local supplier development – or "local content", i.e.: "the capture

[16] World Business Council for Sustainable Development (WBCSD) and SNV. 2007. Promoting Small and Medium Enterprises for Sustainable Development. Development Focus Area Issue Brief.

of employment and procurement opportunities by nationals and nationally-based firms"[17] – programs are coherent with social mining because they provide communities with economic opportunities. However, it is easier to set aside resources to encourage and make a case for them internally. This is because engaging local suppliers and distributors provides results, such as proposal quality and contract performance, that are tangible to mining companies.[18] Moreover, these results are directly related to mining companies' business.

Local enterprises can provide a large number of services to the mine, such as (1) general services: accommodation, pest control, transportation services, or logistics and warehousing; (2) construction and trades services: small vehicle maintenance, painting and corrosion protection, road marketing and signage, and roofing and waterproofing; and (3) goods provision: automotive parts, cleaning supplies, laundry equipment, and appliances and electrical goods.[19]

In theory, thanks to their proximity to the mine and the variety of services they can offer, local vendors can provide a continuous and competitive supply of goods and services. However, mining corporations often have to face a local contracting base that lacks skills, an understanding of and experience with large international companies, and the ability to raise credit,[20] making local options problematic in terms of transaction costs and overall quality. For example, in one of the programs we examined, local suppliers (1) did not always meet the requirements of complex and large contracts; (2) did not always comply with the terms of the contract; (3) did not fully understand the quality and standard requirements (safety, quality, etc.) of international enterprises; and (4) lacked access to financial resources.[21]

In response, programs are designed to help make local supply bases competitive by providing local enterprises with financing and capacity building, as well as modified procurement systems that are adapted to the characteristics of local SMEs, such as breaking down outsourcing requirements into manageable proportions. The examples below will show that capacity building typically includes basic business skills, such as management, bookkeeping, business planning, and marketing. In addition, financing is usually provided through special arrangements involving the company, donors, host governments, or a partnership between them.

As in the case of social mining programs, many such programs are often designed and implemented in cooperation with donors. Host country governments will sometimes provide some degree of funding and advice on local contexts, while donors provide funding and help for mining corporations to balance their core business needs and external pressures. As such, donors, understanding local socio-economic contexts and drawing on their experience with developing country governments, can be instrumental partners for mining companies that often

[17] Warner, Michael. 2007. Incentivizing community content: the Interface of Community Investment Programs with Local Content Practices in the Oil and Gas Development Sector. Overseas Development Institute (ODI). As a side note, this term is applicable to any industry.
[18] A common grievance of mining corporations regarding social mining programs is their lack of measurability (see Tapiero, 2009).
[19] Engineers against poverty, undated. Maximising the contributions of local enterprises to the supply chain of oil, gas & mining projects in low income countries: A briefing note for supply chain managers & technical end users.
[20] Ibid.
[21] Lozansky, Tanya. Undated. SME opportunities associated with large-scale projects in natural resource sector. International Finance Corporation.

do not have sufficient know-how to design and implement local content programs in a development context.[22]

3.3 Examples of Enterprise Development Programs

3.3.1 MozLink

Introduction

The Mozal aluminum smelter, located near the Mozambican capital Maputo, started as a joint venture between Mitsubishi Corporation, Industrial Development Corporation of South Africa Ltd., the Government of Mozambique, and BHP Billiton, which operates the smelter. Mozal has undergone two phases: Mozal I and Mozal II. Since its inception, Mozal has encouraged local SMEs' integration into the supply chain through two programs: the Small and Medium Enterprise Empowerment Program (SMEELP) and the MozLink SME development program (MozLink), described below.

SMEELP (2001-2003)

As a reaction to the lack of key capabilities observed in local SMEs following the first months of Mozal I, SMEELP was launched in 2001 as a partnership program between Mozal, CPI[23] and APDF-IFC.[24] Its aim was to prepare local SMEs to participate in the Mozal expansion phase (Mozal II). Using a database provided by CPI, EPCM contractors[25] visited and assessed 25 SMEs based on the capabilities sought by the smelter. The chosen SMEs then received training in tender preparation and contract execution. Upon contract award, each SME was assigned a mentor who supported and guided it throughout contract implementation. When needed, mentors with specialized skills were also available for advice.[26] SMEELP trained 16 companies that had been awarded 28 contracts amounting to a total of more than $5 million. In 2003, it was taken over by CPI as a model for expansion to other industries.[27]

MozLink (2003-2007 and 2007-2010)

Implemented by the Mozal aluminum smelter, the IFC, and the CPI, MozLink was set up in 2003 to replicate the results achieved through SMEELP. Between 2002 and 2007, operational spending with local companies increased from $5 million to $17 million per month and the number of local companies engaged to provide goods and services to Mozal rose from 40 to 250. The success of MozLink I (ended in 2007) prompted additional companies[28] in other industries[29] to create a three-year program, MozLink II, to achieve the same goals.

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[22] World Bank. 2007. Beyond Corporate Social Responsibility: The Scope for Corporate Investment in Community Driven Development.

[23] The Centro de Promoçao de Investimentos (CPI) is the Mozambican government's investment promotion center.

[24] The IFC-supported African Project Development Facility (APDF) is one of 12 SME development facilities established by the IFC to serve frontier markets.

[25] The Engineering, Procurement, Construction Management sector – in this case the contractor was SLMR.

[26] Mozal S. A. R. L. September 2002. Environmental and Social Performance Annual Monitoring Report (AMR).

[27] "MOZAL hands business empowerment programme to CPI". Mozambique News Agency AIM Report No 256, June 2003.

[28] Mozal, Sasol, Cervejas de Mocambique (CDM), and Coca-Cola.

[29] Mining but also natural gas and others.

The MozLink Approach

The MozLink approach consists of five phases[30]: 1) Preparation; 2) Assessment I and Workshop I; 3) Execution of SME Improvement Plan; 4) Assessment II and Workshop II; and 5) Evaluation.

Phase 1: Preparation

First, commitment from management is secured by finding internal champions and integrating the underlying values of the program (i.e. a concern for local welfare and economic development) into the company's charter. Secondly, program partners – the mining company, a development institution, and a local business organization – with complementary roles – are then selected. Thirdly, a steering committee, ideally made up of senior managers of the partner organizations as well as two local SMEs, is created to monitor the implementation and progress of the SME development program. And lastly, a program strategy that integrates essential components of the program (e.g. procurement, finance, program monitoring and evaluation (M&E) is designed.

The mining company and the local (partner) business organization select SMEs according to specific criteria. Selected SMEs are then visited by program members to inform them of the program and find out about their interest. Finally, technical (company employees) and business (external consultants) mentors, who will coach and guide the SMEs through the program, are identified, recruited and trained.

Phase 2: Assessment I and Workshop I

The program's training and mentoring components are designed following the collection and analysis of baseline data on the SMEs' technical and business skills. The resulting curriculum is applied in one-day group training sessions, then during one-on-one mentoring sessions. This ensures exposure to basic skills that mentors can later build on to focus on specifics. Examples of curriculum topics include tendering, management, and marketing.

A six-month improvement plan for each SME, which details the areas that need improvement as well as targets and deadlines, is developed as the basis on which the plan will be monitored by both the SMEs and the mentors. As such, to ensure their ownership and commitment, SMEs must be involved in developing the plan. Finally, the first workshop is conducted to remind SMEs of the program's goals and benefits, to present the status of their current skills based on the first assessment, and to provide them with an opportunity to meet with the mentors to discuss and modify their improvement plan. Again, the SMEs play an active rather than passive role in this process.

Phase 3: Execution of the SME Improvement Plan

Using the curriculum developed in phase 2, one-day workshops are delivered to the SMEs in hotels or conference rooms; thus ensuring that SMEs reach an equal level of competency. In this phase, SMEs also put their improvement plan, developed in the first workshop (during phase 2), into action and are encouraged to regularly be in contact with their mentors during the implementation for maximum monitoring and support. Mentors also continue to be available for guidance and troubleshooting after the program ends.

[30] This section is derived from Jaspers, Frans-Jozef; and Mehta, Ishira. 2008. Developing SMEs through Business Linkages—The MozLink Experience. A Manual for Companies, NGOs, and Government Entities, Version 1. 0. International Finance Corporation.

Business and technical mentors visit the SMEs three months into the implementation plan to evaluate progress and performance to date. The questionnaire used is the same as for the first assessment (see phase 2) and progress is compared against the baseline data. Insufficient progress is addressed during subsequent meetings between the SMEs' management and the mentors in order to design a remedial course of action. Finally, a steering committee meeting examines the progress of the overall program.

Phase 4: Assessment II and Workshop II

At the end of the implementation plan, an assessment is conducted to collect endline data and assess progress against the baseline data collected during phase 2. Importance is given to improvement and progress rather than scores, as well as to the SME's willingness to improve. As during the mid-term assessment the same individuals, techniques and questionnaires are used to ensure an unbiased outcome.

A second workshop is conducted, consisting of a performance review, presentations by two or three SMEs about their experience with the program, an awards ceremony, and an outline of the next steps. During the performance review, the mentors present the results of the second assessment to the SMEs and describe their experience working with them. The outline of the next steps focuses on their need to diversify clients in order to avoid dependence on the lead company, and assures the SMEs that continued mentorship support will be provided after the program. The SMEs are also informed that an evaluation of their new organizational structure and business model will take place after two years.

Phase 5: Evaluation

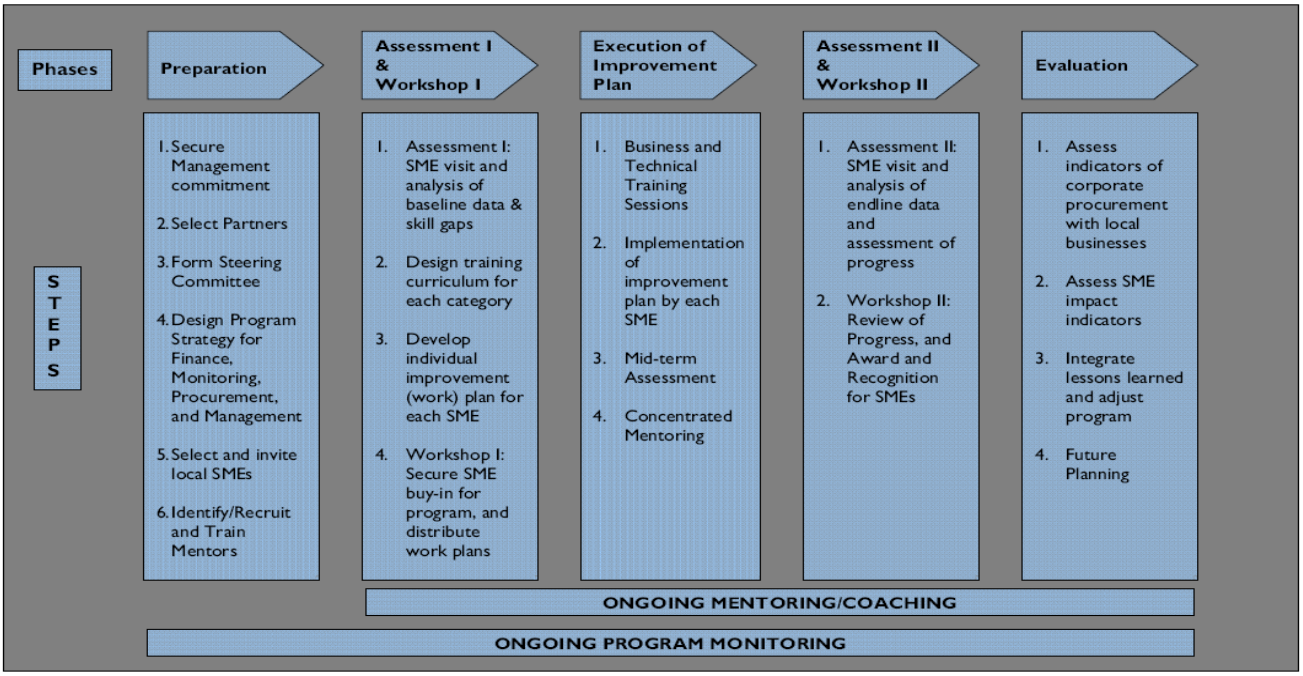
In this phase, changes in the procurement patterns of the lead company vis-à-vis local SMEs are measured. Measurement is made possible by the regular gathering of data indicators, devised in the preparatory phase, on selected aspects of the lead company's procurement.

As such, SME indicators, monitored since the inception of the program, are measured and include change in employment; change in the quantity and size of contracts; change in turnover; and change in the number of client companies (client diversification). The end line data collected during this phase are compared against baseline data to measure progress. Because some changes are only visible a couple of years after the end of the program, subsequent evaluations are needed to get an accurate sense of its effects.

Lessons, compiled during the second workshop and additional feedback sessions, are derived from feedback by all stakeholders (including the SMEs, the steering committee, the operational team from partner organizations, and mentors) and adjustments are made before the next program cycle.

The sustainability of the program is ensured by a post-two year evaluation of the participating SMEs and program; by creating a business network of program alumni; and by creating a program website to facilitate linkages between the SMEs and potential companies as well as providing an information database.

Figure 1: The Mozlink framework and phases



Source: Jaspers, Frans-Jozef; and Mehta, Ishira. 2008. Developing SMEs through Business Linkages—The MozLink Experience. A Manual for Companies, NGOs, and Government Entities, Version 1. 0. International Finance Corporation.

3.3.2 The Anglo Zimele Development and Empowerment initiative

Introduction

The Anglo Zimele Development and Empowerment initiative[31] has been operated since 1989 by Anglo American to empower BEE[32] entrepreneurs in South Africa. It is made of three funds, articulated around three roles: 1) the provision of financing for local junior mining companies, 2) enterprise development, and 3) supply chain development. All three funds are managed by Anglo Zimele Management Services.

Financing for local junior mining companies is provided through the Anglo Khula Mining Fund, a joint initiative between Anglo American and government-owned Khula Enterprise Finance Limited. The fund targets small-scale black-owned mining companies and offers equity, loan finance, and technical support during the preparatory phases of their mining projects (exploration and pre-feasibility) to bring them to commercially bankable positions.

Enterprise development falls under the responsibility of the Small Business Start-Up Fund and provides loan finance in the communities residing around the mining operation. In addition, small business hubs provide technical assistance in essential business skills (e.g. setting up business plans) through mentoring and training.

[31] A more detailed presentation can be found at: Anglo Zimele Development and Empowerment Initiative Ltd, and International Finance Corporation. 2008. The Anglo Zimele Model: A Corporate Risk Capital Facility Experience, from which this section is drawn.

[32] The Black Economic Empowerment (BEE) Strategy was created by the South African Government to increase the participation of Historically Disadvantaged South Africans (HDSAs) in the country's economic growth.

The supply chain development fund is managed by Anglo Zimele; its staff work with Anglo American's procurement departments to identify and ensure the flow of procurement opportunities to BEE SMEs. The fund provides loan and equity financing as well as technical assistance. It is the oldest of the three funds and the focus in this paper, as it is most relevant to the scope of this study.

The Supply Chain Development Fund

Bringing local SMEs into the mining supply chain is done in three phases: (1) pre-approval, (2) approval, and (3) post-approval.

Phase 1: Pre-approval

First, Anglo Zimele staff – business development officers (BDOs) – identify investment opportunities by matching supply (i.e. local SMEs wishing to contract with Anglo American) and demand (i.e. procurement opportunities at Anglo American's respective procurement departments) in the value chain.

On the supply side, this can be accomplished in various ways: SMEs might approach BDOs with a proposal; BDOs might approach SMEs regarding an upcoming contracting opportunity; or an SME might approach BDOs to negotiate a partnership with another SME. BDOs analyze the demand side by looking at potential procurement opportunities, the level of demand for related services, and the potential for investment based on these opportunities.

Secondly, prospective SMEs apply for funding by submitting a business plan, meeting a set of investment criteria, and demonstrating that they have sufficient determination and drive.[33] Applicants who are not in a position to create their own business plan are given technical assistance. Funding is granted once the plan is approved by the Anglo Zimele board, after which Anglo Zimele acquires an equity stake in the business.

Lastly, an investment proposal that includes a formal business plan, financial evaluations, and the financial structure (composed of debt and equity) and mechanics (i.e. marketing, etc.) of the deal is put forth.

Phase 2: Approval

The investment proposal is submitted and presented to an investment committee made up of members of Anglo Zimele board and staff. If it is approved, it is examined by the Anglo Zimele board of directors as well as senior managers from Anglo American who are experts in various disciplines (e.g. technical, social, financial, etc.) for ratification.

Phase 3: Post-Approval

Following approval, the entrepreneur's ability to run a business is assessed. His/her readiness is evaluated by examining psychological factors such as focus, drive, and ambition; skills and knowledge, such as marketing and financial forecasting; and the extent to which they have a business mindset, as well as any past business history.

The results of the assessment determine the contents of an improvement plan designed to bring the entrepreneurs to the desired level of business and technical skills. Capacity is built in four ways and on an on-going basis. The first takes the form of formal or informal training programs and/or on-the-job training. The second is the presence of a technical mentor – an individual or a

[33] The investment criteria and a sample business plan are made available to prospective SMEs beforehand.

company – made available to the entrepreneur by Anglo Zimele for the transfer of specific knowledge or skills. Third, the BDOs provide significant assistance to the businesses at the management, marketing, operational, and financial stages. Fourth and last, one-on-one guidance and mentoring is regularly provided by Anglo Zimele staff (e.g. accounting, secretarial, and legal advice).

The improvement plan is implemented only after all the agreements have been finalized and signed and a new company has been created as a proprietary limited vehicle. Funds are released to the SME after the business has been registered and a bank account has been opened.

Examples of areas covered in training	Examples of assistance given by BDOs Management
• Financial management for non-financial managers • Assertiveness • Computer literacy • Business management • Production management • Industry specific courses • Basic accounting • Supervisory course • Director training workshops	• Take position as a non-executive director • Provide strategic, financial and commercial advice • Ensure proper corporate governance and good business practices • Attend monthly management meetings as well as quarterly board meetings • Report back to the Anglo Zimele board on a quarterly basis • Marketing • Assist with marketing efforts – both internally in Anglo and externally • Introduce the investment to the media and relevant publications thereby enhancing the profile of the business • Operational • Socio-Economic Assessment Toolbox (an Anglo American programme) • Ensure proper integration of the BEE partner/s into the business and the transfer of skills through a developmental plan • Mentor and coach the entrepreneurs • Financial • Ensure that loan repayments occur on a consistent basis and that the company's growth path is constantly monitored • Monitor and review monthly management reports • Ensure audited annual financial statements are completed on time

Adapted from Anglo Zimele Development and Empowerment Initiative Ltd, and International Finance Corporation. 2008. The Anglo Zimele Model: A Corporate Risk Capital Facility Experience.

ANALYSIS AND CONCLUSIONS

4.1 Are Local Content Programs Successful?

What to look for

The mining company's objectives

From a mining company's standpoint, there are two reasons for engaging local enterprises: the need to maintain a social license to operate, and the need to have a competitive and steady local supply base.

Because local content programs are often conducted in conjunction with other social mining programs, it is challenging to attribute to them any changes in stakeholder perceptions. Perhaps for that reason, we have not found any rigorous assessments showing that local supplier development programs significantly improve a mining company's standing in the eyes of the community and other stakeholders in Sub-Saharan Africa. Despite this, many programs have a significant and positive impact on how companies are perceived.

For the availability of a competitive local supplier base, the question is whether it makes sense to incur the real and opportunity costs of investing in local content programs. Proximity and local labor costs suggest that vendor services will be cheaper, so in theory increases in performance and quality would guarantee a competitive local vendor pool. While we know that local SMEs have been contracted and have provided services to mining companies, we were not able to determine whether this is attributable to real improvements in proposal quality or to the desire to meet the goals of the project (i.e. to contract and use local SMEs). However, in at least one of the programs examined, all contracts were implemented successfully by the SMEs participating in the program. In addition, the fact that some programs were taken over and extended by the mining company after the donor's departure, or replicated by other companies and/or industries indicates that by the end of the programs, a competitive local supplier base had been created. We thus consider the returns on investing in local content programs to be high enough, and that these programs are successful from a profitability point of view.

The donor's objectives

From a donor's standpoint, success is typically determined by the amount of income generated by the new economic opportunities provided by the programs, and by the degree of empowerment and sustainability eventually gained by the local suppliers who participated in them.

While likely to be impressive, we have found no data on the magnitude of income increases, at the SME or the community level (through trickle-down effects), generated by local content programs. Again, obtaining and analyzing this type of data is challenging, and we can only encourage studies to be conducted and made public in this regard. It is our view, however, that local content programs build skills and generate measurable amounts of income. An interesting question in this regard is how, and to what extent, these effects depend on the level of development and skills of the SMEs at the start of these programs. While not the object of this study, if the influence of SME development and skills is significant we suggest that donors consider this variable in future programs.

In many cases, we found that local SMEs broke their dependence on the mines and outlived the programs, suggesting real improvements in capacity and marketability. Although we were unable to obtain the percentage of local SMEs that outlived the programs overall, in our view the fact that a number of them did also suggests that program empowerment and sustainability goals were met, at least in part.

4.2 Key Success and Failure Factors

A number of studies have drawn observations and lessons from experiences with these programs. These studies, as well as insights drawn from our own interviews, provide valuable guidelines for the design and implementation of local content programs and are listed below.

1. Because local content programs are often designed, funded, and implemented by several actors, clarity of purpose and roles are essential. In addition, each actor's motivations for participating in a local content program should be known before the

program is launched to avoid possible conflicts of interests down the road and be ready to adapt to possible changes in programmatic or implementation circumstances as required.[34] As an example of differences in motivations, mining companies are interested in short- or medium-term performance within their own supply chain, whereas one of the donors' main goals is to empower enterprises in the community so that they eventually break their dependence on the program and are capable of diversifying outside the mine.

2. Knowing the company's day-to-day demand for supplier services is essential. In at least two of the programs studied, careful attention was paid to finding out whether or not a practical and relatively foreseeable need for local services existed, and to determine precisely what these were. Needless to say, purchases for services won't be made if there isn't any demand, no matter the cost-effectiveness and competence of the local supplier.

   Interviews conducted with two individuals, who were familiar with two separate IFC local content programs, stressed the importance of engaging the mining company's procurement units to ensure their participation and adoption of the program. As evidenced, corporate procurement units will not include local suppliers in the supply chain if they are not convinced that it is in their best interest to do so.

3. Knowing the characteristics of potential suppliers is as important as finding out the demand for services from procurement departments. Not all local enterprises have the same level of sophistication, skills, and connections within the local business and financial sector. This has an impact on the type of services they can provide to the mine. One program we came across tended to use vendors with a level of technical skills that were more advanced. Business skills will also vary across locations, as well as the size of the potential vendors.

   The above means that assistance as well as procurement arrangements will differ along with the training and mentoring needs required in each program. This applies to business as well as technical skills and has an impact on assistance type, curriculum contents, delivery methods, and therefore on the type of consultants and training institutions used. Differences in needs will also occur within (as opposed to across) programs, since often SMEs are not homogenous even within the same community.

4. Regulations regarding local content vary from country to country within Sub-Saharan Africa. For example, while Ghana did not have explicit requirements in this regard, South Africa has strict rules regarding the inclusion and participation of Historically Disadvantaged South Africans (HDSAs) in economic growth and development – which also applies to foreign companies. As previously mentioned, because operating a mine largely depends on government approval, meeting these requirements is essential.

5. Beyond the elements of the local context outlined above, it is advisable to know what conditions to expect on the ground and to adapt to them. For example, having program staff that can engage in the local language and have a strong cultural knowledge of the

[34] IFC Monitor. Undated. Linkage Programs to Develop Small and Medium Enterprises. Results Measurement Unit of the SME department, International Finance Corporation.

community can make a significant difference in how a local content program is perceived, trusted, and understood by local SMEs.[35]

6. The degree to which a company's senior management commits to local enterprise development is a key determining factor of program success. Finding champions in the company who can influence procurement is a significant factor in positively influencing the process of integrating local vendors into the supply chain.[36]

7. A significant achievement of one of the programs was changing the dominant business practice of not using a competitive bidding process when contracts were awarded. However, we have not seen mention of this specific practice in the other programs encountered. At any rate, in the case of the program mentioned, changing local business practices was a motivation for the mining company. Although that program's approach for local content integration was essentially similar to others examined, the lesson here is that a potential impact of local content programs is a change in the local business culture towards more competitive processes.

8. Section 2.2 and Annex IV show that in December 2008, some Sub-Saharan African regions were more prominent than others in terms of project stage and mineral type. Moreover, as seen in Annex V, different kinds of mining techniques are used. These observations have implications for local content programs. The reason is that some mining techniques are better adapted to certain minerals, and different minerals will require operations that will differ in scale, capital intensity, and duration. Although it is not within the scope of this paper to describe them in detail, we can point out that the differences just mentioned will invariably have an impact on the nature of local content engagement – something that mining companies and donors should be mindful of when planning for and designing local supply chain development programs.

4.3 Conclusions

In this paper, we presented the most known and successful local content initiatives in Sub-Saharan Africa and the complex contexts in which they have, and will occur. We have outlined why these programs were implemented, general principles of implementation, as well as success and failure factors and lessons learned.

It is our hope that by synthesizing a large portion of information into a succinct format, we have provided a guide and starting point for further research on local content programs in Sub-Saharan Africa and other regions of the world. In this regard, we can only stress the need for more information, data, documents and studies to be made publicly available. We also hope this paper will help the mining sector, donors, and host governments to further optimize the ways in which they work together to find and achieve common goals that are beneficial to all – including local communities.

While we see a trend toward local content initiatives in other sectors, we cannot say the mining sector was an initiator or leader in this regard. That said, while a comparative study of local content approaches across sectors is beyond the scope of this paper, it is our view that sharing information on local content programs in the mining sector can be valuable to other sectors investing in or outside Sub-Saharan Africa.

[35] Jenkins, Beth; Ishikawa, Ishiro; Barthes, Emma; and Marisol Giacomelli. 2008. International Finance Corporation, Harvard Kennedy School of Government, and International Business Leaders Forum.
[36] Ibid.

ANNEXES

Annex I. Primary Sources

Interviews were conducted with:

- Bill Turner, Anvil Mining (phone interview). March 2009
- Chris Anderson, Newmont Mining Corporation (phone interview). March 2009
- Craig Williams, Equinox Minerals Ltd (phone interview). March 2009
- Danielle Martin, Principal, Coffey Natural Systems (phone interview). March 2009
- David Brown, Coffey Mining (phone interview). March 2009
- Gordon Freer, Program Manager, Seda Platinum Incubator, South Africa. March 5 2009
- Holger Grundel, DfID (phone interview). March 2009
- James Suzman, Director Corporate Citizenship, De Beers, London. March 2009
- Jonathan Samuel, International Social and Community Development Manager, Anglo American Plc. London. March 2009
- Jonathon Ridley, Senior Manager, Coffey International Development Ltd (phone interview). March 2009
- Lia Vangelatos, Fund Manager of Anglo Zimele, South Africa. March 2009
- Maria Cecilia Aurojo Morales, former project staff, International Finance Corporation (phone interview). July 2009.
- Rick Yeates, Senior Principal, General Manager - Business Development, Coffey Mining Pty Ltd (phone interview). March 2009
- Robin Weisman, Sr. Investment Officer, SME Global Linkages, International Finance Corporation, Washington, DC. March 2009
- Thilasoni Chikwanda, Operations Officer, OGMC/PEP, International Finance Corporation, South Africa (phone interview). March 2009

Annex II. Anglo Zimele Selection Criteria for SMEs

1. Will only invest in commercially ready proposals.

2. Will only invest in commercially viable and long term sustainable businesses that are wealth creating (that generates an IRR of at least 20%).

3. Will only invest where BEE equity partnership is required with management involvement and value adding capability (this must conform to the Mining Charter).

4. There must be a transfer of technical and commercial skills for BEE entrepreneurial development.

5. There must be some owner's equity contribution (minimum of 10%).

6. Will only invest where there is a supply link, actual or potential, into Anglo or its business unit's supply chain. (There may be motivated exceptions to this criterion.)

7. Maximum investment per deal is US$0.7 million (approximately ZAR 5 million). Prior to 2008, maximum investment per deal was US$0.35 million (approximately ZAR 2.5 million).

8. Anglo Zimele to acquire minority equity participation (10–49%).

9. Fund working capital requirements through shareholder loans at prime plus 1% with commercial repayment terms and conditions.

10. Job creation a natural outcome.

11. Exit strategies to be clearly defined at the outset.

12. For established business proposals, new company is the preferred route.

13. Investment to be preferably made directly into the investee company.

14. The business must be registered as a (Pty) Ltd company and as such must have an appointed auditor.

15. Proper accounting records must be maintained by either an internal resource or outsourced to an independent third party. This resource must be approved by Anglo Zimele.

16. Shareholders and loan agreements will be compiled by Anglo Zimele which will have as annexures Anglo's good corporate citizenship principles and Anglo Zimele's financial control and SHE requirements.

17. Anglo Zimele will not invest in any "sin" industries.

Anglo Zimele reserves the right to decline investment proposals even though they may meet the above specified criteria.

Source: International Finance Corporation and Anglo Zimele Empowerment Initiative Ltd. 2008. The Anglo Zimele Model: A Corporate Risk Capital Facility Experience

Annex III. The ten principles of ICMM

01. Implement and maintain ethical business practices and sound systems of corporate governance.

02. Integrate sustainable development considerations within the corporate decision-making process.

03. Uphold fundamental human rights and respect cultures, customs and values in dealings with employees and others who are affected by our activities.

04. Implement risk management strategies based on valid data and sound science.

05. Seek continual improvement of our health and safety performance.

06. Seek continual improvement of our environmental performance.

07. Contribute to conservation of biodiversity and integrated approaches to land use planning.

08. Facilitate and encourage responsible product design, use, re-use, recycling and disposal of our products.

09. Contribute to the social, economic and institutional development of the communities in which we operate.

10. Implement effective and transparent engagement, communication and independently verified.

Source: http://www.icmm.com/our-work/sustainable-development-framework/10-principles

Annex IV. Tables and Graphs

Projects per Mineral Type by Region per Project Phase

#	REGION:	Number of Projects	Gem-stones	Precious Metals		Base Metals					Ferrous Metals		Non-Ferrous Metals			Special Metals				Energy Minerals		Processed Minerals		Number of Projects per Progressive Stage:					
			Diamonds	Gold	Platinum	Aluminium	Copper	Nickel	Zinc	Rhodium	Chrome	Iron Ore	Manganese	Magnesium	Tantalite	Ilmenite	Titanium	Zircon	Rutile	Uranium	Coal	Cement	Industrial	TOTAL	Active	Bankable	Feasibility	Pre-Feasibility	Grassroots Exploration
1	**Central Africa**	**123**	**18**	**26**	**2**		**40**	**6**	**2**			**1**		**1**	**1**	**1**	**1**			**18**	**5**		**1**	**123**	**20**	**4**	**27**	**57**	**15**
	Angola	**5**	5																					5	1		3	1	
	Zambia	**51**	2	8			24	4	1											11			1	51	7	1	9	30	4
	Zimbabwe	**3**		1	2																			3	3				
	Mozambique	**19**		8				1				1			1	1	1			1	5			19	1	1	2	9	6
	Malawi	**7**						1												6				7	1		1	3	2
	DRC	**37**	11	9			16		1															37	7	1	12	14	3
	Congo	**1**												1										1		1			
2	**Southern Africa**	**255**	**57**	**33**	**46**		**17**	**4**	**2**	**1**	**1**	**4**	**1**	**0**	**1**	**2**		**1**		**19**	**33**	**2**	**31**	**255**	**50**	**27**	**79**	**91**	**8**
	RSA	**170**	32	17	45		1	2	1	1	1	4	1			2		1		5	25	2	30	170	47	23	59	36	5
	Lesotho	**3**	3																					3			2	1	
	Botswana	**38**	17	2	1		5	2												3	8			38	2	2	10	22	2
	Namibia	**44**	5	14			11		1						1					11			1	44	1	2	8	32	1
3	**West Africa**	**191**	**11**	**147**	**2**		**1**	**4**	**4**			**7**						**1**	**1**	**12**			**1**	**191**	**13**	**10**	**35**	**108**	**25**
	Mauritania	**2**										1								1				2		1		1	
	Senegal	**8**		6								1						1						8	2		1	5	
	Guinea	**10**	1	4								1								3			1	10		1	3	6	
	Sierra Leone	**14**	2	5	1			2				2							1	1				14	1		3	7	3
	Liberia	**5**	2	2								1												5		1		4	
	Cote D'Ivoire	**14**	1	13																				14	1	1	1	7	4
	Ghana	**46**		46																				46	1	4	9	20	12
	Togo	**3**						1	1											1				3				3	
	Cameroon	**2**						1				1												2		1	1		
	Gabon	**6**		4	1															1				6			1	5	
	CAR	**8**	3	4																1				8			2	6	
	Niger	**6**		3																3				6				5	1
	Algeria	**2**		2																				2	2				
	Mali	**39**	2	36																1				39	3		8	25	3
	Burkina Faso	**26**		22			1		3															26	3	1	6	14	2
4	**East Africa**	**81**	**1**	**64**	**3**		**3**	**3**								**1**				**6**				**81**	**1**	**2**	**21**	**37**	**20**
	Burundi	**1**						1																1				1	
	Uganda	**3**		3																				3				3	
	Eritrea	**11**		10			1																	11		1	6	4	
	Ethiopia	**1**		1																				1				1	
	Sudan	**1**																		1				1			1		
	Kenya	**2**		1												1								2		1			1
	Tanzania	**62**	1	49	3		2	2												5				62	1		14	28	19
5	**Indian Ocean**	**33**	**2**	**16**	**1**		**3**	**3**			**1**					**2**				**4**	**1**			**33**	**2**	**0**	**2**	**11**	**18**
	Madagascar	**33**	2	16	1		3	3			1					2				4	1			33	2		2	11	18
6	**Other**	**3**	**1**	**2**																				**3**	**3**	**0**	**0**	**0**	**0**
	Canada	**1**	1																					1	1				
	Peru	**1**		1																				1	1				
	Egypt	**1**		1																				1	1				
	Total Projects	**686**	**90**	**288**	**54**	**0**	**64**	**20**	**8**	**1**	**2**	**12**	**1**	**1**	**2**	**6**	**1**	**2**	**1**	**59**	**39**	**2**	**33**	**686**	**89**	**43**	**164**	**304**	**86**

Source: Projects IQ - Mining and Industrial Project Database. http://www. projectsiq. co. za/

Projects by Region per Plant Type by Phase

PROJECTS IQ
Mining & Processing Project Intelligence in Africa

REGION:	PROJECT PHASE: ACTIVE	BANKABLE	FEASIBILITY	PRE-FEASIBILITY	GRASSROOTS	NUMBER OF PROJECTS	PLANT TYPE:
Central Africa	10	4	23	57	14	108	NEW
Southern Africa	18	12	72	88	8	198	
West Africa	6	9	31	109	25	180	
East Africa	1	2	19	38	20	80	
Indian Ocean	2		2	11	18	33	
Other	3					3	
TOTAL PROJECTS	40	27	147	303	85	**602**	
	ACTIVE	BANKABLE	FEASIBILITY	PRE-FEASIBILITY	GRASSROOTS	NUMBER OF PROJECTS	EXPANSIONS
Central Africa	7				1	8	
Southern Africa	10	5	5	1		21	
West Africa	3		3	1		7	
East Africa			1			1	
Indian Ocean						0	
Other						0	
TOTAL PROJECTS	20	5	9	2	1	**37**	
	ACTIVE	BANKABLE	FEASIBILITY	PRE-FEASIBILITY	GRASSROOTS	NUMBER OF PROJECTS	REFURBISHMENTS
Central Africa	2		4			6	
Southern Africa	3	2	1			6	
West Africa	1		1			2	
East Africa						0	
Indian Ocean						0	
Other						0	
TOTAL PROJECTS	6	2	6	0	0	**14**	
	ACTIVE	BANKABLE	FEASIBILITY	PRE-FEASIBILITY	GRASSROOTS	NUMBER OF PROJECTS	INDUSTRIAL
Central Africa	1					1	
Southern Africa	19	8	1	3		31	
West Africa		1				1	
East Africa						0	
Indian Ocean						0	
Other						0	
TOTAL PROJECTS	20	9	1	3	0	**33**	
						686	TOTAL PROJECTS

Source: Projects IQ - Mining and Industrial Project Database. http://www. projectsiq. co. za/

Projects by Region per Mining Type by Phase

REGION:	PROJECT PHASE: ACTIVE	BANKABLE	FEASIBILITY	PRE-FEASIBILITY	GRASSROOTS	NUMBER OF PROJECTS	MINING TYPE:
Central Africa	11	3	20	26	4	64	SURFACE MINING
Southern Africa	11	8	47	53	3	122	
West Africa	4	5	22	59	12	102	
East Africa	1	2	14	19	3	39	
Indian Ocean	2		2	9	11	24	
Other	3					3	
TOTAL PROJECTS	32	18	105	166	33	**354**	
	ACTIVE	BANKABLE	FEASIBILITY	PRE-FEASIBILITY	GRASSROOTS	NUMBER OF PROJECTS	OPEN CAST / UNDERGROUND MINING
Central Africa	2	1		3		6	
Southern Africa	2	2	2	3		9	
West Africa	2	2	2	3	2	11	
East Africa						0	
Indian Ocean						0	
Other						0	
TOTAL PROJECTS	6	5	4	9	2	**26**	
	ACTIVE	BANKABLE	FEASIBILITY	PRE-FEASIBILITY	GRASSROOTS	NUMBER OF PROJECTS	UNDERGROUND
Central Africa	6		7	2	1	16	
Southern Africa	18	9	29	6	1	63	
West Africa	4	2	11	10	2	29	
East Africa			6	5		11	
Indian Ocean						0	
Other						0	
TOTAL PROJECTS	28	11	53	23	4	**119**	
	ACTIVE	BANKABLE	FEASIBILITY	PRE-FEASIBILITY	GRASSROOTS	NUMBER OF PROJECTS	INDUSTRIAL
Central Africa	1					1	
Southern Africa	19	8	1	3		31	
West Africa		1				1	
East Africa						0	
Indian Ocean						0	
Other						0	
TOTAL PROJECTS	20	9	1	3	0	**33**	
	ACTIVE	BANKABLE	FEASIBILITY	PRE-FEASIBILITY	GRASSROOTS	NUMBER OF PROJECTS	NOT YET DETERMINED
Central Africa				26	10	36	
Southern Africa				27	4	31	
West Africa				38	9	47	
East Africa				14	17	31	
Indian Ocean				2	7	9	
Other						0	
TOTAL PROJECTS	0	0	0	107	47	**154**	
						686	TOTAL PROJECTS

Source: Projects IQ - Mining and Industrial Project Database. http://www. projectsiq. co. za/

Annex V. Mining Techniques

Mining is either conducted above or underground[37]. Surface mining involves removing the surface to reach buried ore deposits by using open cast techniques. Examples of open cast techniques are open-pit mining (where materials are recovered from an open pit in the ground), quarrying, strip mining (stripping layers off the surface), and mountaintop removal that reach deposits deep below. Underground mining uses tunnels (horizontal passageways) and shafts (diagonal or vertical) dug deep into the ground to bring ore and waste rock to the surface, as well as other techniques, such as room and pillar mining as well as bore hole mining. Furthermore, a third type of mining is conducted underwater by dredging the ocean or sea floor. In general, surface mines are more efficient and economical.

Picture 1: Scorpion Zinc Mine in Namibia (open cast)

Example 1: Skorpion Zinc Mine - Namibia
Skorpion Zinc Mine, in south-west Namibia, is an open-pit mine owned by Anglo American Base Metals. It operates an open pit mine mill and hydro/electro metallurgical refinery. The operation was established at a capital cost of $454 million and, at full capacity, the operation is anticipated to contribute 4% of Namibian GDP.

Picture 2: Target Gold Mine in South Africa (Underground)

Example 2: Target Gold Mine – South Africa
In South Africa, the target gold mine was established at a cost of $215 million. The mine works ore bodies at a depth of between 2,000 and 2,500 feet and, in order to maintain acceptable operating temperatures, has a 24MW refrigeration plant for underground ventilation. To deal with the steep slopes, an underground crusher has been installed to ensure the ore can safely be handled on the monorail transportation system. A new surface concentration plant retrieves gold from the ore.

Picture 3: Offshore Diamond Mining

Example 3: Marine Diamond Mining - Namibia
De Beers mines for diamonds off the south-west Coast of Namibia using a fleet of five mining vessels. Mining takes place at a depth of between 300 and 500 feet, and in 2007 the operation produced over 1 million carats of diamonds.

[37] With the exception of solution mining, where minerals are extracted through boreholes drilled into the ore deposit.

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